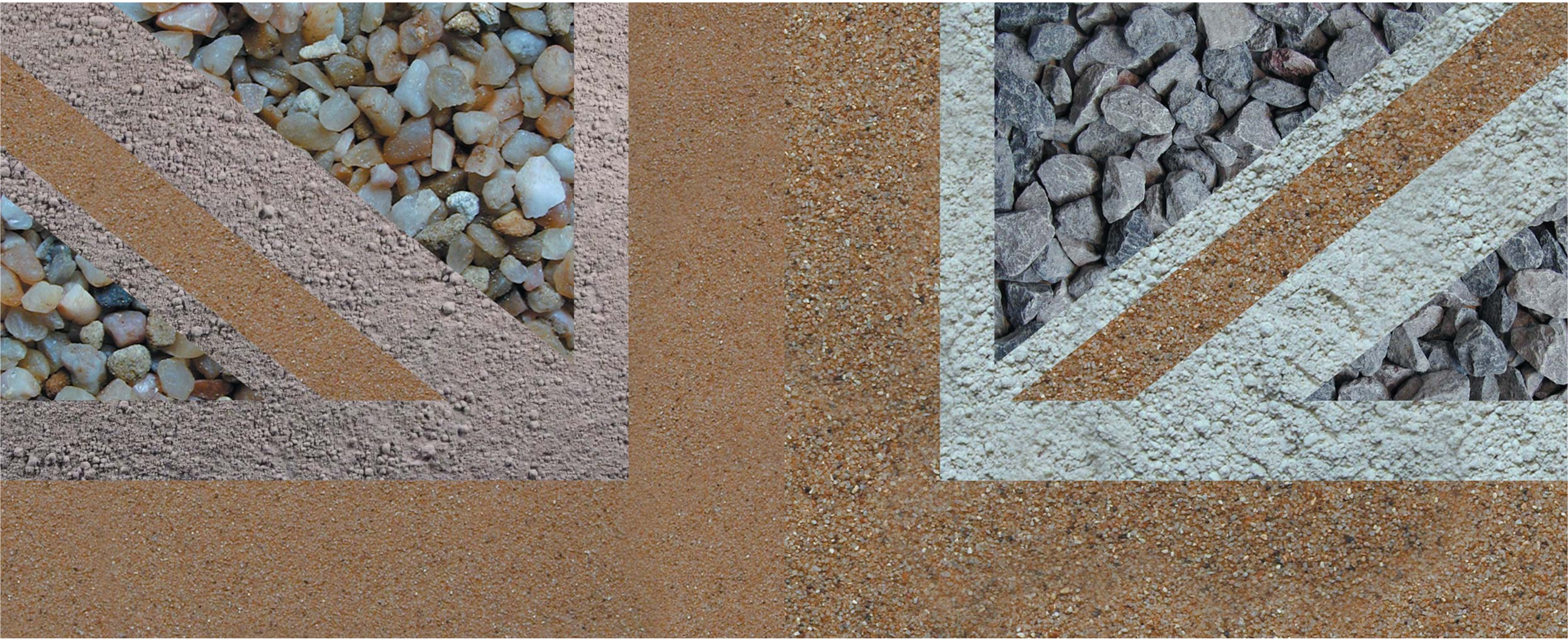
mpa
essential materials
sustainable solutions



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The Mineral Products Association is the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

With a growing membership of 450 operators across the UK, it is the sectoral voice for mineral products, representing the vast majority of independent SME companies across the UK as well as nine major international and global companies.

The mineral products industry's contribution to the UK

. . . essential to the economy and our quality of life

make the link
to mineral products

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make the link to mineral products

Our agenda

- ***Economic conditions that support investment***
- ***Better Government support for an essential industry***
- ***A reasonable 'licence to operate'***
- ***Proportionate legislation and regulation***
- ***Recognition of progress***

Every £1 invested in construction generates nearly £3 in total economic activity - construction relies on mineral products

Essential to the economy and our quality of life

The mineral products industry is an essential, indigenous and major primary producer in its own right - but it is also locked into the DNA of a whole host of other important industries. We are the largest supplier to the construction industry, and sectors such as housing and property as well as transport, energy and water all rely upon the supply of mineral products of one type or another. In short we are critical to the development and maintenance of UK infrastructure and for the improvement of people's everyday lives.

The flow of essential mineral products such as aggregates, asphalt, cement, concrete, dimension stone, mortar and silica sand into the economy makes us the nation's biggest materials producer - a total of some 250 million tonnes each year. Each and every working day, the sector delivers over one million tonnes of raw materials and manufactured goods to its supply chain. No other industry can match this.

Our sustainability credentials are strong and support the performance of those whom we supply. We have already made significant strides in driving CO_2 emissions down while pushing the bar upwards on health and safety, responsible sourcing, recycling and resource efficiency. We are one of the key industries that will make a significant long-term contribution in the transition to a low-carbon economy.

This is an industry full of "good news" stories, but perhaps none more so than our contribution to biodiversity. Our stewardship of land - and our world-class restoration of mineral extraction sites in particular - means that we have not only delivered widely acknowledged improvements to the environment but are also uniquely placed to deliver nine of the Government's 11 targets for priority habitats.

It is the nature of our industry and of our people that we are practical and solutions-based. We aim to support the Government of the day in delivering its agenda for the economy and for both the natural and built environments by offering constructive advice on policy development and implementation.

For such a significant and complex industry, it is no surprise that we have reasonable concerns about the cumulative impact of taxation, legislation and regulation which can create uncertainty and undermine investment. It is vital for our economy and growth that such an important, long term and strategic industry is encouraged to continue to invest in the UK and able to maintain security of supply, steadily and adequately.

This publication marks the start of our **'Make the Link'** campaign which aims to achieve greater recognition for the essential contribution that this great industry makes to the UK and its strategic importance to all of our futures.

We are confident that, with the right support, we can continue to make a positive difference to the economy and to the quality of life that we all value.

Nigel Jackson
Chief executive, Mineral Products Association

At a glance

250 mt
annual production

£9 bn
industry annual turnover

£400 bn
turnover of industries we supply

£120 bn
the value of our main customer, the UK construction industry

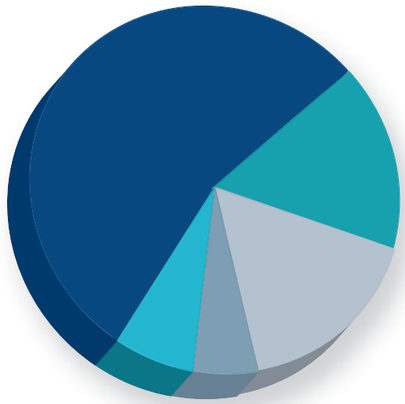
70,000
people employed by the industry

2.5 m
people directly employed by the industries we supply

"I have worked closely with the mineral products industry since my appointment as Business Minister, and see its businesses as great contributors to our plans for growth."

Mark Prisk MP, Minister for Business and Innovation

No industry pumps more materials into the arteries of UK life and the economy than mineral products. Over one million tonnes in a typical day, worth £9bn a year and providing jobs for 70,000 people. But what is really significant about our industry is the extent to which it supports others and, in doing so, is essential to the UK economy. We estimate that the knock-on benefit of what we do supports over £400 billion in terms of turnover in industries we supply and over 2.5 million jobs in the economy as a whole.



UK Mineral Sales from domestic production
Source: BGS, UK Minerals Yearbook 2011

- Aggregates Minerals 225m tonnes
- Natural Gas 55m tonnes
- Crude Oil 58m tonnes
- Coal 19m tonnes
- Other Minerals 23m tonnes

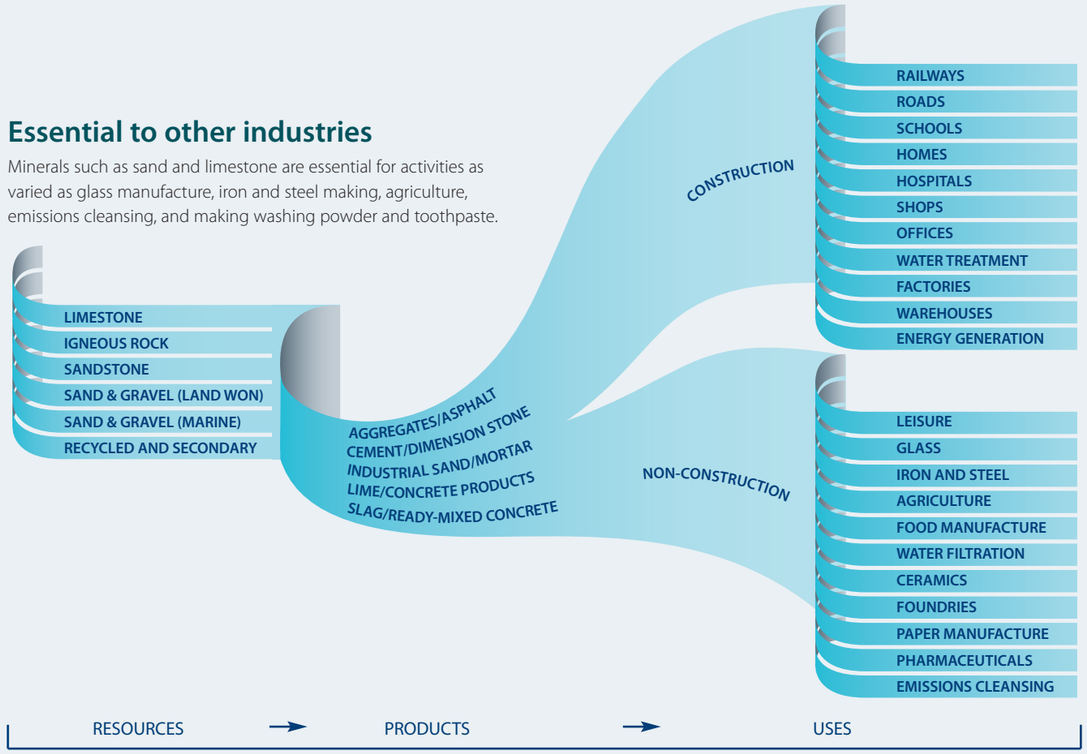
Mineral products enable us to build and improve our housing stock, transport networks, commercial and industrial buildings, utilities, schools and hospitals. While markets have suffered significant decline during recent years, the sheer scale of the £250 billion investment identified by Infrastructure UK and the outstanding need to increase the availability of housing, demonstrate the critical role we will play in delivery.

The value of such assets to the UK is huge. For example, the strategic road network of motorways and trunk roads in England - built with mineral products and dependent on them for maintenance - accounts for less than 10 per cent of the total UK road network but is valued by Government at £100 billion. Some products we make possible are not so obvious. Without limestone, there would be no steel. Take away sand, and there would be no glass. Remove lime, and water would not be fit for drinking.

There is now general acceptance of the need for a more balanced economy with greater emphasis on production and manufacturing industries. Mineral products is one such industry with both local economic and employment benefits (especially in rural areas) and linkages throughout the economy and the UK.

Essential to other industries

Minerals such as sand and limestone are essential for activities as varied as glass manufacture, iron and steel making, agriculture, emissions cleansing, and making washing powder and toothpaste.



Success on sustainability

- **Health and safety:** lost-time incidents reduced 83% in the last 10 years. Committed to further halving LTIs by 2014
- **Recycled and secondary materials:** the European leader at 28% of the market
- **Resource efficiency:** use of aggregates and cement: per capita 35% and 60% respectively below the European average
- **Alternative fuels:** 38% of fuel used by the cement industry comprises waste material otherwise destined for disposal
- **Carbon reduction:** the cement industry achieved a 57% drop in carbon dioxide emissions between 1990 and 2010
- **Climate change:** structural use of mineral products can significantly reduce emissions over the life of buildings
- **Biodiversity:** making a significant contribution to UK targets and uniquely placed to do more
- **SSSIs:** over 700 have their origins in mineral extraction
- **Trees:** one million planted over the past five years
- **Visitors:** over 20,000 welcomed on sites in a typical year

Mineral products sales UK

CONSTRUCTION USES		
Aggregates		225m tonnes
of which	Crushed rock	108m tonnes
	Sand and gravel	57m tonnes
	Recycled	60m tonnes
Cementitious materials		11m tonnes
of which	Cement	9m tonnes
	Other cementitious materials	2m tonnes
Ready-mixed concrete		21m cubic metres
Concrete products		25m tonnes
Asphalt		25m tonnes
Dimension stone		2m tonnes
NON-CONSTRUCTION USES		
Rock (mainly limestone)		20m tonnes
of which	Industrial lime	2m tonnes
	Agricultural lime	2m tonnes
Industrial sand		4m tonnes

Making construction sustainable

Our industry is a key player in the UK's drive for improved sustainability - an important part of the overall quest for sustainable construction. Put construction, manufacturing and other industries under a microscope and mineral products are embedded not just in their products but in their sustainability credentials.

Low-carbon construction

To understand the true carbon impact of construction it is necessary to look beyond the processes that have gone into a typical building. The real picture only emerges if the analysis is expanded to cover the energy the building consumes over its lifetime.

A house built with concrete and masonry uses materials that are usually local in their origin and delivered over relatively short distances. That is not the case with alternatives. In addition, the inherent thermal mass of the concrete and masonry house yields considerable savings in terms of reduced heating and cooling requirements. This is because the more dense structure absorbs heat, making it cooler in summer and warmer in winter. Concrete also has natural properties that make it fire and flood resilient.

MPA has enshrined the principles of sustainable development across all its activities and has already made real progress in securing commitment to the cause right through its supply chain. Its products are integral to facilitating a better sustainability performance across the economy.

The Environment Agency's office in Bristol has achieved the highest BREEAM rating for offices of 85 per cent and uses the thermal mass of concrete to achieve its low carbon ambitions.

Responsibly sourced

Mineral products lead the rest of the construction materials field when it comes to responsible sourcing. Domestic supply of minerals means a supply chain that is visible, fully regulated and subject to high standards of environmental management. Over 80 per cent of aggregates, asphalt and concrete supplied by MPA members, for example, is now certified to the BES 6001 framework standard for the responsible sourcing of construction products. The Government's Sustainable Construction Strategy target that at least 25 per cent of construction materials should be responsibly sourced by 2012 has already been comfortably exceeded due to the action of the minerals products industry.

The fact that concrete is a local material and that its supply chain is heavily UK focused and manageable highlights the sustainability of our products. Close monitoring of the usually short supply chain is now the norm.

% of MPA members' production certified as responsibly sourced

95%

89%

80%

The award-winning Royal Alexandra Children's Hospital in Brighton demonstrates high-quality design, value for money and sustainability. The structural use of concrete helps to keep the building warm in winter and cool in summer

© Sanna Fisher-Payne/BDP

Our commitment

The vision of the industry's Sustainable Concrete Forum is for the UK concrete industry to be recognised as the leader in sustainable construction. It has set out these aims:

- Contribute to delivery of a zero carbon built environment
- Provide life-cycle assessment data compliant with codes and standards
- Develop a material and resource efficiency programme to inform best practice across the life-cycle of concrete in the built environment
- Develop a low-carbon freight initiative to support improvement in transport performance through the concrete supply chain to construction sites
- Develop a water strategy to support the measurement and reporting of sustainability performance and target setting
- Target continuous improvement of sustainable production performance and report performance annually

Raising the bar on sustainability

When it comes to sustainability, it isn't enough to rely on today's performance … because it won't be enough tomorrow. There is a need for continual improvement. Our industry has a record of solid achievement on key issues as fundamental as health and safety, carbon reduction and land restoration. But that doesn't stop us from pushing the bar higher still. While habitat creation has for some time been an important focus for our land stewardship work, we are now working closely with Government and other agencies to capitalise further on our unique and latent potential to achieve UK biodiversity targets.

Health & Safety

The health & safety of those who work at and visit our sites is the industry's top priority. MPA members have already achieved an 83 per cent reduction in reportable injuries amongst employees and have committed to further halving lost-time injury rates by 2014. The industry's overarching aim of "zero harm" is being pursued via a *Safer by Competence* policy which recognises that a competent workforce is a safe and healthy one and sets out routes to ensure continuing improvement and professional development. For example, more than 30,000 drivers have so far been awarded Drivers Skills Cards. MPA has evolved a series of *Safer by* ... strategic tools focused on meeting relevant National Occupational Standards. The long-standing MPA industry awards scheme and the *Safequarry.com* website with its rapid alert system have together resulted in extensive sharing of best practice; incident alerts; toolbox talks and hot topics across the industry. *Safequarry.com* is also used by the Health & Safety Executive as well as in many countries beyond the UK and Europe.

The "zero harm" principle is carried through to public audiences via two initiatives. The *Stay Safe* campaign aims to discourage children and young people from putting their lives at risk by trespassing or illegally entering industry sites. An innovative and industry-leading *Cycle Safe* scheme reflects growing concern across the industry over cyclist deaths involving lorries. A six-point plan aims to raise mutual awareness, encourage appropriate use of technology and develop partnerships.

"MPA is an excellent example of how the relationship between industry and regulator has matured and evolved into partnership … Keep up the good work - celebrate your successes to date, consolidate them and strive to do even better in the future."

Judith Hackitt, Chair, Health & Safety Commission

Biodiversity, geodiversity and heritage

The industry is now widely recognised by independent experts as a large-scale creator of biodiversity through high quality restoration and land stewardship. MPA members manage or control a land area of over 115 square miles - equivalent to a National Park such as the Norfolk Broads. To date, industry activities have been responsible for the creation of 700 SSSIs, two national nature reserves, 22 local nature reserves, 15 field study and education centres and 13 nature trails. The RSPB says the industry is uniquely placed to single-handedly deliver nine out of 11 of the Government's biodiversity action plan targets.

Quarries and other extraction sites are also important to the UK's uniquely diverse geological heritage because they afford opportunities to study and enjoy geology that would only otherwise be possible at major outcrops and around our coastline. Some 2,300 sites in Britain have, since 1949, been designated as Sites of Special Scientific Interest on account of their geological interest - and no fewer than 500 of them were exposed by quarrying.

Mineral extraction often produces archaeological finds that give us a better understanding of our past. Disturbing ground can create a risk of destroying valuable archaeology, and the industry has long accepted its responsibility not just to cooperate but to fund advance investigation work. In a typical year, operators pay for work covering more than 600 hectares, around half of that before planning permission has been granted. The MPA is a co-signatory of *'Mineral Extraction and Archaeology Practice Guide'* published by English Heritage.

"What the quarrying industry has achieved over the last century, in terms of what it has done for the environment, is legion. You are not just restoring, you are putting a lot more back - there is a net gain."

Poul Christensen, Chairman, Natural England

Photo: Andy Hay (rspb-images.com)

Raising the bar on sustainability

Carbon reduction

Cement manufacture is, by its nature, energy and carbon-intensive. The UK industry has been a world leader in its carbon reduction drive to date, reducing absolute CO_2 emissions by 57 per cent between 1990 and 2010 so that it now accounts for only about two per cent of the nation's carbon footprint. Notwithstanding a reduction in production over the period, it has been achieved through heavy investment and a progressive move towards using alternative waste-derived fuels. Meanwhile, the asphalt industry has been working to standardise the calculation of embodied carbon as a first step to systematically reducing it. An open, transparent asphalt calculator (AsPECT) has been developed by the industry and its clients, and is intended to be flexible enough to be used by other products. Some of the reduction will come from new low-carbon asphalt technologies (see page 9) and increasing the percentage of asphalt recycled back in to asphalt, thereby beneficially re-using the "embedded carbon" in bitumen.

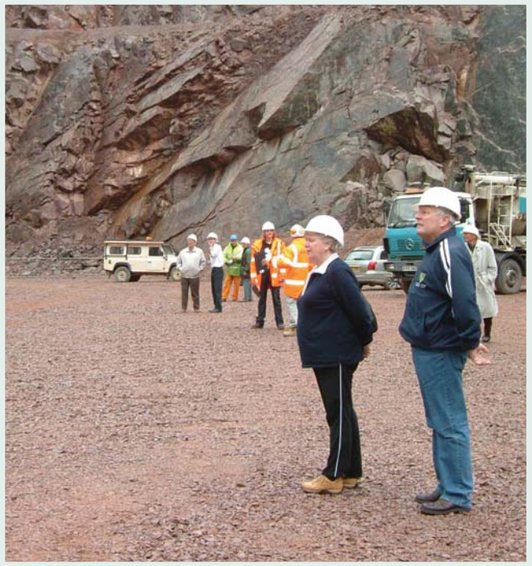
UK cement works operate to the very highest levels of environmental control and performance

Stakeholder engagement

The industry's stakeholders are extensive and range from its neighbours to Government and its advisors, Europe and beyond. The industry recognised long ago that, given the nature of its work, it had a particular responsibility to improve its communication with local communities. Engagement has resulted in an extensive network of liaison groups which meet routinely rather than only when issues arise. In 2010, the aggregates sector hosted 257 liaison groups, while cement operations recorded 34 liaison meetings. Consultation takes place in advance of planning applications and will often involve local exhibitions.

MPA works in partnership with bodies such as Natural England, the RSPB, The Wildlife Trust and English Heritage, and has mutually beneficial relationships with organisations like the Royal Town Planning Institute and the CBI Minerals Group which has developed the UK Minerals Forum in which the MPA plays a full and active part.

Through MPA, the industry is actively engaged with over 12 'sister' European trade organisations in order to ensure that UK sectoral interests are promoted and protected. We lead the work on many UK and EU standards committees, working with specifiers and customers including Government, to develop fit-for-purpose, performance-based standards.



Product innovation

Product innovation is one of the keys to the industry's sustainability performance. These are just some examples of the constant quest to find new and more sustainable solutions to meet society's needs:

Sustainable urban drainage systems
Employing block paving, concrete or asphalt permeable paving systems to harvest water and minimise the overloading of drains and flooding.

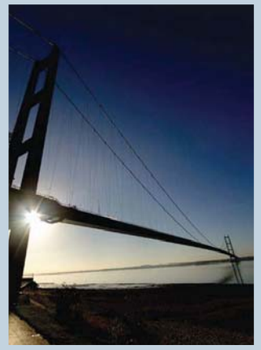
Permeable paving at The Gateway, Leeds

Cold-lay asphalt
Advances continue to be made in producing asphalts at lower temperatures. Various technologies are used to reduce energy demand without compromising workability for installation, and/or in-service mechanical performance and durability.

Novel cementitious formulations
Cutting CO_2 emissions from manufacturing to less than half; zero carbon cements have been developed at a laboratory scale.

Self-compacting concrete
High quality concrete cutting the effort and energy needed for placing and compaction, as well as minimising construction noise.

High strength concrete
A necessity for today's increasingly tall buildings and longer spanning bridges.



Foamed concrete
Flowable material for fast highway reinstatement or lightweight fill for voids.

Active thermal mass systems
Augmenting concrete's inherent thermal mass by active air or water systems, reducing energy demands of buildings.

Thin-joint masonry
A fast-build method of masonry construction.

Intelligent concrete
Precast concrete systems that can interact electronically over their lifetime.

Looking to the future, the industry is working with leading UK and global technical bodies to come up with the solutions to tomorrow's challenges.

Image courtesy London 2012

Winning in 2012

The London 2012 Olympics is a defining moment for Britain on the world stage. But the Games are also a significant landmark for concrete as it affirms its right to be recognised as the leader in sustainable construction - and to be recognised aesthetically as well as for its strength and durability.

Photo © Adam Kerfoot-Roberts, Wikimedia Commons

Image courtesy London 2012

Using resources efficiently

Mineral products are natural resources or are derived from them, and we are fortunate that the UK's diverse geology gives us a plentiful indigenous supply of most of the non-energy raw materials we need. Harnessing them for the good of the nation also means consuming other valuable resources such as energy and water. Using resources wisely and with an eye to the needs of future generations is crucial and is tackled on both a day-to-day basis and with wider initiatives. The industry leads Europe in its use of recycled and secondary aggregates and has made substantial progress in introducing waste-derived alternative fuels. Its next big challenge lies in further addressing its use of water.

Leading Europe on recycling and resource efficiency

Recycled and secondary aggregates account for 28 per cent of the GB market, which is three times the average in Europe and makes us the best performer. They now account for over 20 per cent of the aggregate content of precast concrete. The reality is that most usable "hard" construction and demolition waste is now reprocessed for use as aggregates of one type or another and future levels will be limited only by rates of demolition. Secondary materials finding useful roles in the market place include power station ash as a cement addition and blastfurnace slag from the iron and steel industries, which is used as aggregate and processed to produce cementitious materials.

Those inert construction wastes that cannot be reused or recycled for beneficial use as a product can be recovered for the infilling of old mineral extraction sites to enable beneficial restoration of land. Consequently, the vast majority of construction and demolition waste and the reuse of naturally occurring materials enables the recycling of either products or land.

The UK is extremely efficient in its use of mineral products. This is partly due to a lower relative rate of construction in the UK than in some other European countries but also reflects, for example, greater use of recycled aggregates and lower levels of waste on construction sites. As a result, the per capita use of aggregates is typically 35 per cent lower than the European average and our per capita consumption of cement 60 per cent lower.

Best at recycling

Percentage of recycled supply in aggregates markets

GB | Rest of Europe

Restoration of land

Land is second only to people as the industry's most important resource and it has a long and successful record of restoring sites. The fact that many sand and gravel quarries in particular can be worked and restored progressively means that, across the industry, there is a high ratio of land restored as opposed to that which is being prepared for quarrying. The quality of restoration is rated amongst the highest in the world and has yielded many rich wildlife reserves and community facilities as well as land returned for farming. The industry celebrates its achievements in the field of restoration with a biennial awards scheme and, through its partnership with Natural England, via a biodiversity awards scheme.

Ratio of land restored to land prepared for quarrying

Proportion of UK seabed subject to aggregates dredging

The water challenge

Water is rising up the sustainability agenda. Our members are major managers of water, transferring large volumes from quarries to surface water courses in order to access aggregate materials, and are also consumers. These supplies can come from mains and from private boreholes, but they are also recycled to a substantial degree and returned, once cleansed, to waterways. Looking ahead, our first task is to monitor use and to understand the water footprint of individual products. We can then share best practice and consider ways in which the lakes and other water bodies that we control, or the transfers we make, may have potential to aid localised drought situations.

Solid settlement tank at a cement plant produces clean water for re-use

Fuels for tomorrow

UK cement plants are now routinely using carbon-neutral biomass fuels as a substitute for virgin fossil fuels. The range includes natural rubber from scrap tyres, sewage sludge, meat and bone meal and paper. The common factor is that each has a high calorific value and would otherwise have gone either to landfill or incineration without energy recovery. Burning them in the highly controlled conditions of a cement kiln is safe and has no negative impact on the environment - and the ash is recycled into product. Both cement and asphalt plants have routinely used recycled processed fuel oil derived from waste engine lubricating oils. The cement industry has also made good progress in replacing virgin raw materials with a variety of substitutes, using waste streams such as construction waste, ceramic moulds, foundry sand and gypsum from plasterboard. As a result, there was a 7.2 per cent replacement of virgin raw materials in 2010 compared with 1998.

Other materials used in asphalt mixtures include china clay sand, slate waste, and cellulose fibres from recycled paper in Stone Mastic Asphalts (SMAs).

Proportion of fuel used by the cement industry comprising waste material

Uniquely placed to benefit nature

The mineral products industry has a long legacy of high quality restoration and is uniquely placed to protect and enhance UK biodiversity, including rare and threatened species. High standards of site management, coupled with imaginative restoration and after-use strategies will contribute significantly to the achievement of the UK Biodiversity Action Plan. The industry is an enthusiastic supporter of the Nature After Minerals Programme, a partnership between Natural England and the RSPB.

Habitat creation

Habitats where the industry can deliver 100 per cent of Biodiversity Action Plan (BAP) targets in England.

- ✓ Lowland dry acid grassland
- ✓ Lowland wood-pasture and parkland
- ✓ Lowland heathland
- ✓ Purple moor grass and rush pastures
- ✓ Wet reedbeds
- ✓ Coastal and floodplain grazing marsh
- ✓ Saline lagoons
- ✓ Lowland meadows
- ✓ Upland hay meadows

Wildlife presenter Kate Humble with young visitors to Lanehead Quarry, Lancashire, where the operator has set aside a restored area as a wildlife garden.

David Attenborough helps young people discover nature

"Nature is intrinsically valuable and studies demonstrate it is fundamentally important to our wellbeing and our economy. But we are losing it at an alarming rate. The mineral products industry is uniquely positioned to step up and help turn this around."

Dr Darren Moorcroft, Head of species and habitats conservation RSPB

"What has been said today about the value of the legacy of this industry is really appreciated and really understood by me."

Richard Benyon MP, Parliamentary Under-secretary for Natural Environment and Fisheries (at a MPA/RSPB biodiversity parliamentary reception)

Our products in life

We have long recognised the immense value of naturally occurring materials such as stone as a means to improve life. We have since learned that by crushing and heating it we can produce lime and cement as a means of bonding stone to create concrete. Likewise, stone coated with bitumen has become the prevalent surfacing for our roads. Today, we satisfy the need for stone in part from recycled sources - but primary mineral products are, and always will be, essential. Our products will continue to develop and innovate to meet the challenges of tomorrow, not least in adaptation to climate change.

Recycled and secondary aggregates

MPA policy places recycled and secondary aggregates at the top of the supply hierarchy in order to reduce the demand on primary aggregate resources. The UK leads Europe in its use of recycled and secondary aggregates. Since the late 1980s, the proportion of the overall market satisfied by recycled construction materials has increased from nine per cent to 28 per cent, with a consequent conservation of primary raw materials. By-products from other industries play an important role as secondary aggregates. Ash from power stations is an important constituent of thermal blocks for building and has been used in road pavement construction. Other materials used in asphalt and road construction include china clay sand, slate waste and cellulose fibres from recycled paper.

Slag

Materials extensively recycled by the industry include slag aggregate from iron and steel making and ground granulated blastfurnace slag (ggbs). When used to make a blastfurnace cement directly or when combined with Portland cement in the concrete mixer, ggbs enhances many properties of ready-mixed and precast concretes. Its use as part of the cement provides an economic alternative with enhanced durability in a number of aggressive environments. It also reduces the demand for Portland cement and therefore helps to reduce carbon emissions and extends the life of mineral reserves. Slag aggregate is used for civil engineering applications, asphalt surfacing and the built environment, and as specialist material for water filtration and building insulation.

Aggregates from the land

Aggregates are an end-product in themselves but also a vital ingredient in downstream products such as concrete and asphalt. The main indigenous sources of primary aggregates are sand and gravel in southern England and crushed rocks such as granite and limestone to the north and west. Demand peaked at over 300 million tonnes in the late 1980s but has reduced to around 170 million tonnes today. While aggregates typically travel about 30 miles from their source, some inter-regional transfer is needed using rail transport, which in itself utilises aggregates for track ballast, notably to provide a supply of crushed rock to London and the South East. Transport by river and canal also helps inter-regional flows. When crushed, aggregates become an essential ingredient in a surprising range of products including toothpaste, tyres, paints and soundproofing materials.

Aggregates from the sea

Marine aggregates satisfy around 20 per cent of the UK's total need for sand and gravel. The industry draws its materials from 67 licensed areas covering a total of 1,274km^2 - less than 0.15 per cent of the total UK continental shelf. Of this, about 114km^2 is dredged in a typical year. A further 1,931km^2 is currently under application or covered by first-stage prospecting licences as the industry seeks to replenish depleted reserves. Quite apart from their role in concrete, marine aggregates also have a strategic role in supplying large-scale coastal defence and beach replenishment projects. Marine resources also support the successful delivery of major infrastructure projects associated with Government policies related to energy security and climate change, such as nuclear new-builds, gas storage facilities and port and transport infrastructure developments, with the industry supplying large volumes of fill and construction aggregates close to where they are needed.

Asphalt

Roads are the economic and social arteries of the nation and we depend upon asphalt as the material from which 95 per cent of our network is built. They are the single largest physical asset owned by central or local government. Many other services including water, telecommunications and electricity are embedded in, or carried alongside roads. Asphalt is generally produced locally and can be applied quickly and trafficked almost immediately to minimise disruption. It is also strong yet flexible, durable, reduces traffic noise and keeps us safe through the grip that it offers. Asphalt made with stone and bitumen is one of the most sustainable of all construction materials and is unique in being 100 per cent recyclable back into asphalt, or into other layers of the road.

Cement

Cement is a key constituent in concrete and mortar, which holds together the fabric of much of our built environment. Cement manufacture involves large factories, requires high temperatures and results in emissions. Controlling the industry's carbon footprint and reducing its greenhouse gas emissions has long been a priority and has undergone a substantial step change over recent years as a result of heavy investment and growing use of waste-derived alternative fuels. In recent years, the cement industry has brought to the market a series of low carbon cements and is actively engaged in development work on the next generation.

Ready-mixed concrete

Ready-mixed concrete plays an essential role in a modern society where high quality and technically advanced concretes are essential to modern construction of all buildings and infrastructure. The industry has strong sustainability credentials given that it draws on almost entirely locally-sourced raw materials and workforces, where exact volume bulk supply means little or no waste and a complete absence of packaging. The UK ready-mixed concrete industry has led the way in incorporating low-carbon cements into concrete. This is either as combinations of cementitious by-products from the iron and power industry with Portland cement in the concrete mixer, or as the increasingly available factory-made composite cements. Where available, the industry maximises the use of recycled and secondary aggregates in concrete. Some 95 per cent of British Ready-Mixed Concrete Association (BRMCA) concrete is now accredited to the responsible sourcing standard BES 6001 and all members hold third-party product conformity certification.

Mortar

Mortar is the "glue" that bonds our bricks, blocks and stone into masonry. The need for quality has resulted in a significant growth in demand for factory-produced mortars manufactured under controlled conditions. Available in colours to suit architects' specifications, mortar can enhance the aesthetic qualities of the masonry by allowing joints to blend or contrast with particular stone or brick. Mortar may also be used as render to enhance the fascia of buildings while adding durability and weatherproofing qualities.

Our products in life

Precast concrete

Precast concrete products are an essential ingredient of most building and civil engineering projects in Britain, providing long-lasting and sustainable solutions. Concrete tiles cloak 80 per cent of new roofs. Concrete masonry has provided the strength, thermal mass and fire protection for 85 per cent of new homes over the last 30 years. Precast pipeline systems carry our sewage and storm water. Foundation systems underpin new structures. Paving systems provide aesthetic and design solutions for our streetscapes and patios. Bridges span our road, rail and water systems. Stone-faced precast panels enhance our buildings. Floors and walls shape our lives. All are supplied by British Precast members from safe, efficient plants.

Dimension stone

Hard-wearing natural stone is in wide demand for prestige projects of many types ranging from new-build flooring and walling to the repair of churches and other facades where conservation is important. Dimension stone can be cut and shaped to specified block sizes. The UK industry has declined since the 19th century in the face of foreign competition but is still the most sustainable source and plays an important role in ensuring that the unique local characteristics of stone-built areas of the UK can be maintained.

Agricultural lime

The UK needs some two million tonnes of agricultural lime each year to maintain the fertility of its farmland by countering acidity. Lime has a key role to play at a time when governments across the world are recognising that, with a growing population, ensuring food security is a major challenge. With climate change and greater weather extremes posing a particular threat, protecting the fertility of our soils becomes all the more important.

Industrial lime

Industrial lime is one of the most versatile of all mineral products and has unseen but profound effects on our daily lives. Industries as diverse as steel, chemicals and glass all rely heavily on industrial lime, as does the treatment of contaminated land and desulphurisation of flue gases from power stations. Lime is also vital to the purification of water for human consumption, sugar manufacture and fruit farming.

Silica sand

Silica is one of the most durable of all minerals, resisting both heat and chemical attack. Man has been at his most ingenious in extracting benefit from those qualities in essential products ranging from glass to paints and from plastics to computer chips. It is also employed in making foundry moulds for applications such as car engines; it enhances ceramics, ensures pure water by acting as a filtration medium, encourages growth as a horticultural medium and helps to produce high quality sports pitches.

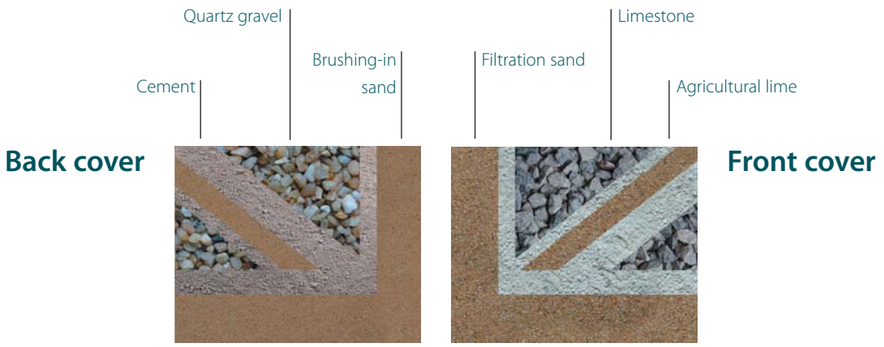
Aim of MPA

MPA members will be recognised and valued for supplying essential materials for a sustainable future in a manner that is economically viable and socially and environmentally responsible.

Role of MPA

MPA is the voice of the mineral products sector and represents and promotes its members in order to:

- Secure and maintain the licence to operate for the safe, sustainable and responsible supply of essential mineral products from the UK
- Raise awareness of the industry, its activities and contribution to the economy and to protect and grow its markets
- Influence the development of technical and environmental standards and codes of practice
- Innovate and deliver sustainable and responsible environmental and market solutions
- Advocate and influence the design and product choice of members' products
- Maintain existing and develop new markets and avoid the creation of 'unlevel playing fields' and minimise cumulative impacts
- Educate stakeholders to 'Make the link' between the sources of mineral products and their use



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